PATENT SPECIFICATION

591,440

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PROVISIONAL SPECIFICATION

Improvements in Electric Switches for Initiating the Discharge in Fluorescent Tubular Lamps and other Gas Discharge Electric Lamps

We, REVO ELECTRIC CO. LIMITED, of Britannia Works, Groveland Road, Tividale, Tipton, in the County of Stafford, a British Company, and ALBERT EDWARD FELTON, of the Company's address, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention has reference to improvements in starter switches and is more particularly applicable to a starter switch of the bi-metallic type for use in connection with gas discharge electric lamps such as the fluorescent tubular lamps employed in modern lighting equipment.

The object of the invention is to substitute for the usual vacuum tube starter switch which is incorporated in the circuit of the lamp and forms a part of the starter and control gear associated with lamps of the aforesaid type, a starter switch of a robust but simple construction which can be utilised with equal efficiency for the aforesaid purpose and which does not necessitate the location of tht mechanism within a vacuum tube.

The invention consists of a starter switch of a bi-metallic character for use in connection with gas discharge electric lamps, characterised by a bi-metallic strip having a wire coiled around but insulated from the strip to which heating conditions are to be applied thereby to open the gap obtaining between the two strips in the lamp circuit, said coil being closely wrapped around the strip to ensure high heat transfer conditions.

According to one means of carrying the invention into practice, the starter switch comprises an insulating base of a plastic or other material which constitutes a mounting for four separate metallic strips, the outer strips form a pair of terminal blades to which the leads are connected, the other ends of the strips being each separately connected to the free end of a wire the central section of which is formed as a coil which is closely wound around an insulated section of another strip which is of a bi-metallic character and forms one of the pair of contact strips in the lamp circuit, the other strip of this pair being located closely adjacent and in parallel to the bi-metallic strip and provided with a contact which is directed toward and is normally touching the contact on the bi-metallic strip.

The insulated base is provided with a bracket in which is adjustably mounted a screw, the inner end of which is adapted to impinge against and to be maintained in contact with the non-bi-metallic strip of the pair of strips in the lamp circuit whereby the gap between the contacts on these strips can be adjusted and set to provide a time lag to suit the time required for pre-heating the thermionic electrodes of the lamp.

Desirably the insulating medium obtaining between the bi-metallic strip and the coil wound around same is of an adherent resinous or plastic character which is readily applied to and around the bi-metallic strip and forms an insulated mounting and setting for the heating coil.

The starter switch is located in series with the lamp circuit so that when the lamp is to be put into operation current is caused to flow through the four leads associated with the starter switch whereby the coil wound around the bi-metallic strip is heated and transfers its heat directly to this strip causing an expansion of this strip which opens the contacts which initially bridged or short circuited the gas column in the discharge lamp, thus applying a potential difference between the electrodes of the lamp and initiating the discharge; the contacts remain open during the continued operation of the lamp.

It will be appreciated from the foregoing description of the starter switch mechanism constructed according to this invention that the essential feature of novelty is the location and mounting of the heating coil on and around an insu-

[Price 1/-]

lated section of the bi-metallic strip which forms one strip of the pair of contact strips within the lamp circuit, and the means of adjusting the time lag.

Dated this 26th day of June, 1945.
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COMPLETE SPECIFICATION

Improvements in Electric Switches for Initiating the Discharge in Fluorescent Tubular Lamps and other Gas Discharge Electric Lamps

We, REVO ELECTRIC CO. LIMITED, of Britannia Works, Groveland Road, Tividale, Tipton, in the County of Stafford, a British Company, and ALBERT EDWARD FELTON, of the Company's address, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has reference to improvements in electric switches for initiating the discharge in fluorescent tubular lamps and other gas discharge electric lamps and is more particularly applicable to an electric switch of the bi-metallic type for use in connection with gas discharge electric lamps such as the fluorescent tubular lamps employed in modern lighting equipment.

The object of the invention is to substitute for the usual vacuum tube starter switch which is incorporated in the circuits of the lamp and forms a part of the starter and control gear associated with lamps of the aforesaid type, a starter switch of a robust but simple construction which can be utilised with equal efficiency for the aforesaid purpose and which does not necessitate the location of the mechanism within a vacuum tube.

The invention consists of an electric switch for the purpose hereinbefore referred to, of a bi-metallic character, incorporating a bi-metallic strip having a wire coiled around but insulated from the strip to which heating conditions are to be applied thereby to separate said strip from a second and flexible strip in the lamp circuit, said second and flexible strip having an adjustable screw engaging same for varying the effective operation of the bi-metallic strip.

In order that this invention may be clearly understood and readily carried into practice, reference may be had to the appended drawings upon which:

Fig. 1 illustrates in vertical sectional elevation a starter switch in accordance with the present invention,

Fig. 2 is a plan view of the switch shown in Fig. 1 with cover removed.

According to one means of carrying the invention into practice, the starter switch comprises an insulating base a of a plastic or other material which constitutes a mounting for four separate metallic strips b^1 b^2 c^1 c^2 and the outer ends of the strips form pairs of terminals b^3 b^4 c^3 c^4. The The inner ends of the strips b^1 b^2 are bent upwardly as at b^5 b^6 carrying terminals b^7 b^8 and b^6 is of a bi-metallic construction. The parts c^1 c^2 have upwardly bent formations c^5 c^6 and a wire the central section of which is formed as a coil d is closely wound around the bi-metallic strip b^6 being highly insulated and coil d attached to terminals c^3 c^4 forms part of the lamp circuit, the strips b^5 b^6 associated with terminals b^3 b^2 form part of the condenser circuit.

The insulated base a is provided with an adjustable screw a^1, the inner end of which is adapted to impinge against and to be maintained in contact with the non-bi-metallic strip b^5 whereby the gap between the contacts b^7 b^8 on these strips can be adjusted and set to provide a time lag to suit the time required for preheating the thermionic electrodes of the lamp.

The wire d may itself be insulated as illustrated or an insulating resinous or plastic body may be applied to the bi-metallic strip b^6 for this purpose.

The starter switch is located in series with the lamp circuit so that when the lamp is to be put into operation current is caused to flow through the four leads associated with the starter switch whereby the coil wound around the bi-metallic strip is heated and transfers its heat directly to this strip causing an expansion of this strip which opens the contacts which initially bridge or short circuit the gas column in the discharge lamp, thus applying a potential difference between the electrodes of the lamp and initiating the discharge; the contacts remain open during the continued operation of the lamp.

Having now particularly described and ascertained the nature of our said inven-

tion, and in what manner the same is to be performed, we declare that what we claim is:—

1. An electric switch for the purpose hereinbefore referred to, of a bi-metallic character, incorporating a bi-metallic strip having a wire coiled around but insulated from the strip to which heating conditions are to be applied thereby to separate said strip from a second and flexible strip in the lamp circuit, said second and flexible strip having an adjustable screw engaging same for varying the effective operation of the bi-metallic strip.

2. An electric switch as claimed in the foregoing claim comprising two strips having terminal extremities protruding from the annular wall of a base, two further strips having terminal extremities also protruding from the said annular wall, the said further strips being united by a wire having an insulating or insulated coil engaging one of the first mentioned strips which is of a bi-metallic character.

3. An electric switch comprising two flexible blades one of which is of a bi-metallic character, a coil around the bi-metallic blade, four terminals and an adjustable screw substantially as described and illustrated in the accompanying drawings.

Dated this 24th day of June, 1946.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

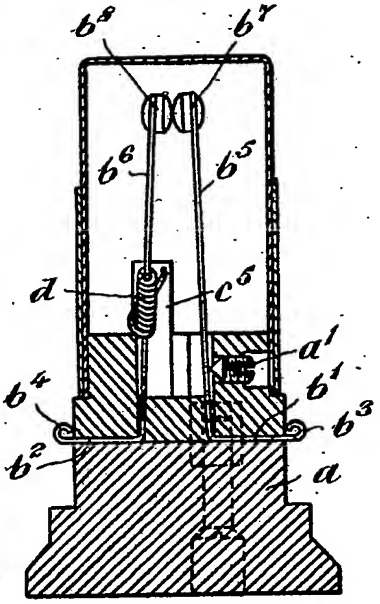
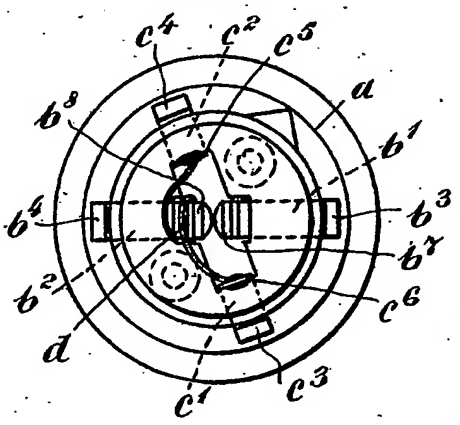


Fig. 2.



H.M.S.O.(Ty.P.)